eastern portion of the State from the same host plants, although the hosts themselves are very abundant in some cases. *Grindelia squarrosa*, Dund., ranges over the entire State in abundance, but *Puccinia grindeliæ*, Pk., has never, to my knowledge, been found east of Russell and Rooks Counties. Another singular fact is that I never found it on the variety *grandiflora*, Gr., which grows so abundantly in western Kansas. *Uredo gaurina*, Pk., and its *Aecidium*, too, are found in the western counties only, although three species of *Gaura* are native in eastern Kansas. *Lygodesmia juncea*, though not widely diffused in the eastern portion of the State, is still rather abundant in spots about Manhattan, but without any fungus; while over the western counties, not only is the plant itself very common, but it supports, in great abundance, a rust which has been named *Puccinia variolans*, Hark., var. *caulicola*, Ell. and Ev. I have noticed for several years that *Puccinia phragmitis* (Schum.), Korn., is never found on *Phragmites communis* in eastern Kansas (although abundant on *Spartina cynosuroides*), but is common on this host wherever found in the western counties, so *Uropyxis amorphæ* (Curt.), Schroet, abundant on both *Amorpha canescens* and *A. fruticosa* in the west, is found only on the former host in this region. What seems to be the *Puccinia grindeliæ*, Pk., above mentioned, is also found on *Aplopappus rubiginosus* in abundance in the west, but this host does not grow in this region. In these cases may there not be anatomical differences in the hosts (of the same species, even) which cause this peculiar distribution of their parasites. At least, the question is worthy of close investigation. It is another indication, to me, that plant *pathology* cannot be well understood without a knowledge of plant *physiology*. I have already shown in another article[1] how the host-plants themselves vary in passing from the more fertile to the more barren districts of the great plains. The distribution of their parasites may be greatly influenced by these variations.

IN MEMORIAM. — THE REV. W. C. LUKIS, M.A., F.S.A.

BY W. GREGSON, F.G.S., BALDERSBY, S. O., YORKSHIRE, ENG.

The death of the Rev. William Collings Lukis removes a familiar figure from the ranks of British scientists, and one who will long be remembered with feelings of deepest respect and esteem, not only in Great Britain, where he lived and worked so long, but throughout the whole of the scientific world. His tall, erect, manly form, and genial countenance, were well known throughout Yorkshire, and he was certainly one whose friendship it was a pleasure and a delight to claim.

Mr. Lukis was not only an archæologist of world-wide eminence but was also a considerable authority on geology, botany and other branches of natural science. He had long been an observant traveller in various parts of Europe, Africa, America, etc. More especially in the Netherlands, Denmark, France, Italy, and Algeria; and his writings and researches show that accurate and intimate knowledge of those countries which he acquired from careful personal investigations. The deceased gentleman was also an artist of considerable power and merit, as many of his works, illustrated by his own hand, sufficiently testify. He was born on April 8th, 1817, in the Island of Guernsey (English Channel), and was the third son of Colonel Frederick Corben Lukis, by Elizabeth, youngest daughter of Mr. John Collings of Guernsey. From his father, who was also an archæologist of distinction, Mr. Lukis inherited a taste for natural science, which he pursued at the University of Cambridge, under Professors Henslow and Sedgwick, and the writer has frequently heard him dilate on the benefits he derived from his connection with such far-famed scientists. He received his early education in Guernsey, afterwards in France, and at Blackheath, near London, under the mastership of the Rev. Sanderson Tennant, whilst in January, 1840, he graduated in honors at Trinity College, Cambridge. Twelve months later he was ordained at Salisbury, by Bishop Denison, and licensed to the curacy of Bradford-on-Avon (of which parish the late famous Harvey, formerly private tutor to Prince George, now Duke of Cambridge, was then vicar). In 1845, he was appointed chaplain to the Marquis of Ailesbury, who successively presented to him the livings of Great Bedwyn, and Collingbowne Ducis in Wiltshire, and Wath, near Ripon, in Yorkshire; which latter he held for thirty-one years up till the time of his death. Whilst residing at Cambridge he was one of the earliest members of and contributors to the Camden Society, then newly formed, and when living at Bradford-on-Avon, he published a quarto volume on "Ancient Church Plate," also other works on "Church Bells," "Church Towers," etc.

In 1847 he was elected a Fellow of the Royal Society of Northern Antiquaries, Copenhagen; in 1853, a Fellow of the Society of Antiquaries, of London; and in 1867, a member of the Société Archéologique de Nantes, whilst in 1872, he was elected a corresponding member of the Société de Climatologie Algerienne. Mr. Lukis was the author of many works on barrows, and other prehistoric monuments, and was a practical barrow digger on an extensive scale, in various parts of England, France, Denmark, the Netherlands, and elsewhere. The Society of Antiquaries, London, published his scale plans of Rude Stone Monuments, with descriptive text. He also edited, for the Surtees Society, Dr. William Stukeley's Diaries and Letters, published in three volumes; and when the Ripon Millenary Festival was celebrated, in 1886, he was an active member of the committee, which was formed to carry out the arrangements, and wrote an interesting and valuable article entitled "Ancient Ripon," since included in Mr. W. Harrison's "Millenary Record" (a beautifully illustrated volume published at Ripon, in 1892).

Mr. Lukis, who was a prominent Free Mason, and a J.P. for Wiltshire, married Lucy Adelaide, daughter of Admiral Sir Thomas Fellowes, who survives her husband, and by whom he leaves two sons and four daughters; the eldest daughter being the wife of a son of the late Canon Hawkins, J.P., of Topcliffe, Yorks (a relative of Mr. Justice Hawkins), and the second daughter being the wife of Mr. H. C. Bickersteth (son of the late Bishop of Ripon, nephew of the Bishop of Exeter, and cousin of the Bishop of Japan).

A committee has recently been formed, under the chairmanship of Sir Reginald Graham, Bart., of Norton-Conyers, near Ripon (which is close to Wath, and where the talented authoress of "Jane Eyre" at one time resided), for the purpose of placing in Wath Parish church a strained-glass window, as a lasting memorial of the late much esteemed rector, who was so ripe a scholar, so kind a friend, and of whom it may be truly recorded: —

> He seemed the thing he was, and joined
> Each office of the social hour
> To noble manners, as the flower
> And native growth of noble mind.

OBSERVATIONS ON DUCKLINGS.

BY C. LLOYD MORGAN, BRISTOL, ENGLAND.

OF seven eggs transferred from a hen to my incubator only two hatched out. Of the others four had not been fertilized and the fifth contained a dead bird in about its tenth day of incubation. Several hours before the ducklings chipped the shell they were piping to be free. One (A) was hatched four hours before the other (B). They were left in the drawer of the incubator for about 20 to 24 hours, and were then transferred to an experimental poultry yard in my study. Somewhat unsteady upon their legs, they kept tilting backwards on to their tails; but A was decidedly the stronger of the two and his motor coördination was better. They pecked with uncertain aim at anything which caught their eyes, such as marks on the basket in which they were to sleep, grain, sand. Chopped-up white of egg was placed before them and moved about with a long pin to draw their attention to it. The coördination for pecking was far from perfect. When a piece was seized after several shots it was mumbled rapidly and then shaken out of the bill unswallowed. A shallow tin of water was placed before them. They took no heed of it. As they tottered about they walked through it several times, but no notice was taken. I dipped A's beak into the water. He drank with characteristic action; he then pecked at

[1] "Contrib. U. S. Nat. Herb.," vol. XXI., No. 6, pp, 220-232.